PAGE

GENERAL NEWS

Administration Manager Bows Out........................ 1
New Name, New Purpose.................................. 1
Computer Guides Available.............................. 2
Recent Acquisitions in the DCS Library................. 2
Personnel Changes...................................... 4

SYSTEM/370 SERVICES

S/370 Reliability...................................... 5
Credit Requests.. 8
/*SETUP Arrives.. 8
Sort Interface Within a Cobol Program.................. 10
High Speed Job Stream News............................. 10

INTERACTIVE TERMINAL SYSTEMS

Interactive Systems Reliability........................ 13
Additions to the APL Public Libraries.................. 14
APL 6 Conference....................................... 15

COMPUTER RESEARCH FACILITY

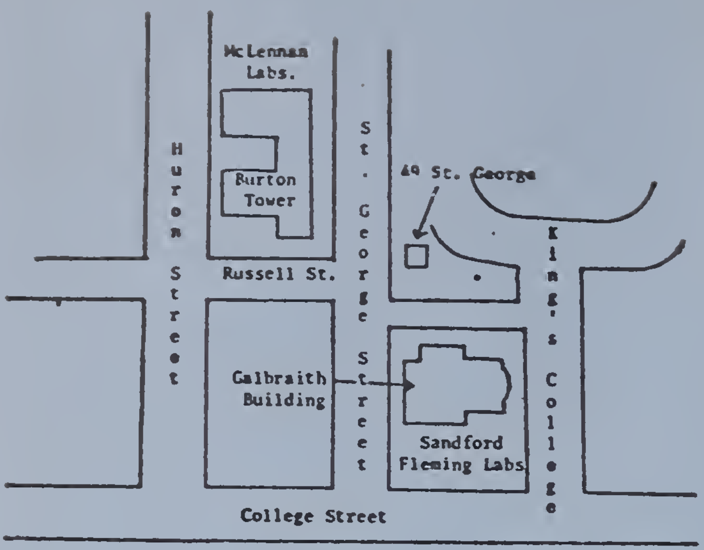
CRF Users' Meeting..................................... 16
New Hardware... 16

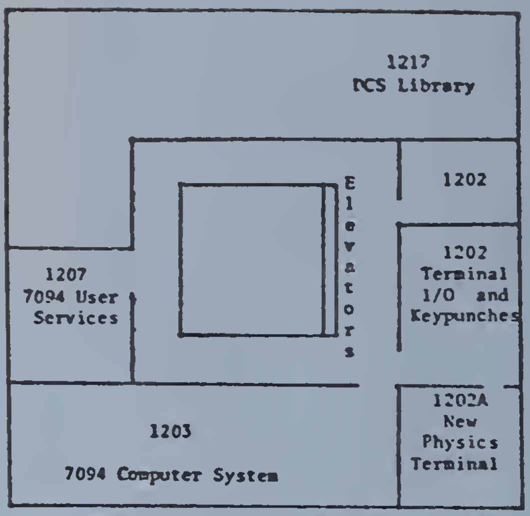
University of Toronto

December 73

No.107

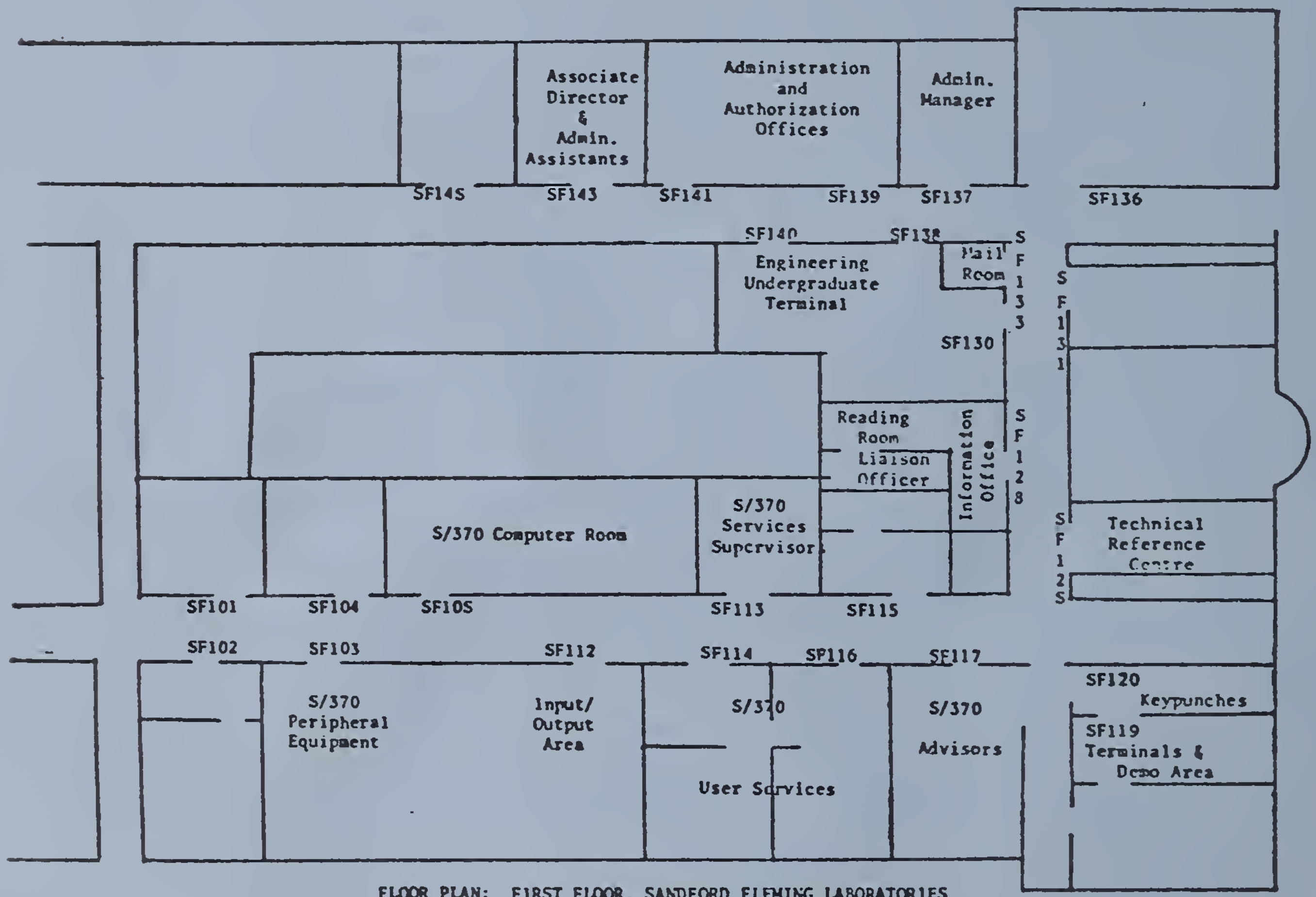
COMPUTERNEWS



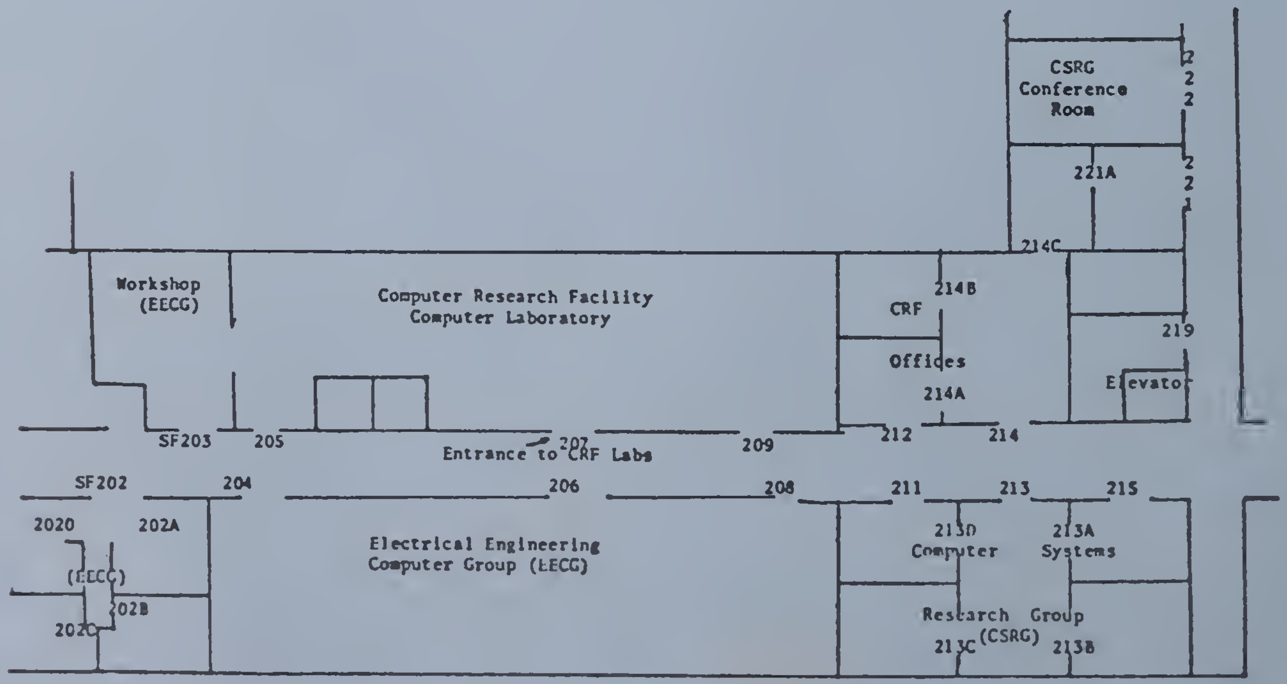


FLOOR PLAN: TWELFTH FLOOR, BURTON TOWER

UNIVERSITY OF TORONTO COMPUTER CENTRE



FLOOR PLAN: FIRST FLOOR, SANDFORD FLEMING LABORATORIES



FLOOR PLAN: SECOND FLOOR, SANDFORD FLEMING LABORATORIES

ADMINISTRATION MANAGER BOWS OUT

J.C. Wilson

It is with much regret I announce that Jerry Palter will be leaving the Computer Centre in the New Year. Jerry is to become Assistant Managing Director of the new Ryerson-York Joint Computer Centre. Although this will be a blow to us, I am sure the new position will offer Jerry some exciting opportunities for the application of his managerial talents, and with increasing inter-university cooperation in computing, as in all else, in the days ahead, our paths will doubtless cross frequently.

I am sure you'll join me in wishing Jerry the best of success in his new position.

NEW NAME, NEW PURPOSE

W.E. Greene

You could not help but notice the new cover on the Newsletter for last month's issue. We apologize for not telling you at that time why it was changed. Due to a last minute crisis (i.e. inability to get "old format" covers) we were forced to make a quick switch to the new format.

The purpose behind the change of the name from Computer Science Newsletter to COMPUTERNEWS is twofold. A continuing effort is being made to make this publication distinct and professional looking, and to make it easier for the reader to digest. Changes that we contemplate for the near future include going from a single, wide column format to a narrow, two column format, which will make more effective use of the paper and will also be easier for people to read. We are also contemplating printing the newsletter on three-hole punched paper, a boon for those who care to file them this way, and stapling with two staples on the side (i.e. book fashion) rather than one staple at the upper left hand corner. We would appreciate your comments concerning these changes, plus any other suggestions or criticisms that you might have.

The second aspect of the change is to make the publication truly a medium for all computer news of interest to the members of the University. The old name "Computer Science Newsletter" did not fairly represent the fact that the news was from the Computer Science departments, Computer Centre and other interested users such as Zoology and Geology. We hope to encourage anyone who feels he or she has programmes or news that might be of interest to others to submit articles for publication. We also intend to actively campaign for news of interest from other dedicated computer centres such as Library Science or the Medical Computing Facility.

Anyone who wishes to make comments or suggestions, or wishes to submit an article for COMPUTERNEWS, please call the UTCC Liaison Office (928-2694).

COMPUTER GUIDES AVAILABLE

W.E. Greene

A pamphlet entitled "Computing at the University of Toronto", has been distributed as widely as possible across the campus. If you have visitors or new members in your department and don't have copies of our pamphlet available to give them, please call the UTCC Information Office at 928-4990 and we will mail or deliver some to you.

RECENT ACQUISITIONS IN THE DCS LIBRARY

Aho, Alfred V., ed.
Currents in the Theory of Computing.
Englewood Cliffs, N.E., Prentice-Hall, 1973.

Brinch Hansen, Per.
Operating System Principles.
Englewood Cliffs, N.E., Prentice-Hall, 1973.

Conference on Data Systems Languages.
Programming Language Committee.
CODASYL COBOL Journal of Development, 1973.
Ottawa, Canadian Government Specifications Board, Mar. 1973.

Duda, Richard O., and Hart, P.E.
Pattern Classification and Scene Analysis.
New York, Wiley-Interscience, 1973.

Engeler, Erwin.
Introduction to the Theory of Computation.
New York, Academic Press, 1973.

Hamming, Richard W.
Numerical Methods for Scientists and Engineers. 2d ed.
New York, McGraw-Hill, 1973.

Harary, F. and Palmer, E.M.
Graphical Enumeration.
New York, Academic Press, 1973.

Harrison, Malcolm C.
Data Structures and Programming.
Glenview, Ill., Scott,Foresman, 1973.

Lambert, John D.
Computational Methods in Ordinary Differential Equations.
New York, Wiley, 1973.

Milne, William E.
Numerical Solution of Differential Equations. 2d ed.
New York, Dover, 1970.

Murray, W., ed.
Numerical Methods for Unconstrained Optimization.
London, Academic Press, 1972.

Schoeffler, J.D. and Temple R.H., eds.
Minicomputers: Hardware, Software, and Applications.
New York, IEEE Press, 1972.

Symposium on the Computer Utility:
Implications for Higher Education
Manchester, N.H., 1969.
The Computer Utility: Implications for Higher Education,
ed. by M.A. Duggan, E.F. McCartan and M.R. Irwin.
Lexington, Mass., D.C. Heath, 1970.

Wilson, Robin J.
Introduction to Graph Theory.
Edinburgh, Oliver & Boyd, 1972.

PERSONNEL CHANGES

P. Kellett

We regretfully announce that Lawrie Lubin, Barbara Davis and Bruce Frost are leaving the staff of the Computer Centre this month. Lawrie is going to the Faculty of Dentistry and Barbara has left us to go to a supervisory position with Warner-Lambert.

We welcome Sean Keeley and Carman Lawrick to System/370 Services programming and I/O staff respectively. Both Sean and Carman have worked as part-time staff for the Computer Centre. We hope you will enjoy working with us in a full-time capacity.

Trudy Holland in our Computer Research Facility tells us that they have recently gained a new staff member. Mitre Gopaul is a new technician in the hardware section. Mitre comes to us from Logical Associates, manufacturers of computer terminals. We hope he will enjoy working here.

S/370 RELIABILITY

D. Rauch

The uptime for November was 98.1% which is a moderate increase from the previous month. The increase can be partly attributed to the improved reliability of our software. There has been a marked improvement in the average number of unscheduled IPLs.

	% UPTIME	UNSCHED IPLs/DAY
JAN 73	96.8	0.87
FEB 73	98.3	1.18
MAR 73	97.8	1.16
APR 73	97.1	1.39
MAY 73	98.5	1.20
JUN 73	98.5	1.70
JUL 73	99.4	0.37
AUG 73	97.6	1.13
SEP 73	86.8	3.63
OCT 73	95.6	1.83
NOV 73	98.1	0.93

The extended period of downtime which contributed 61% of our total downtime was attributed to a hardware problem occurring on November 8th and 9th. A bad card in the writeable control storage area of the 3830 was the cause.

8.6% of the total downtime was caused by I/O errors on the Hasp Spool pack necessitating emergency recovery procedures.

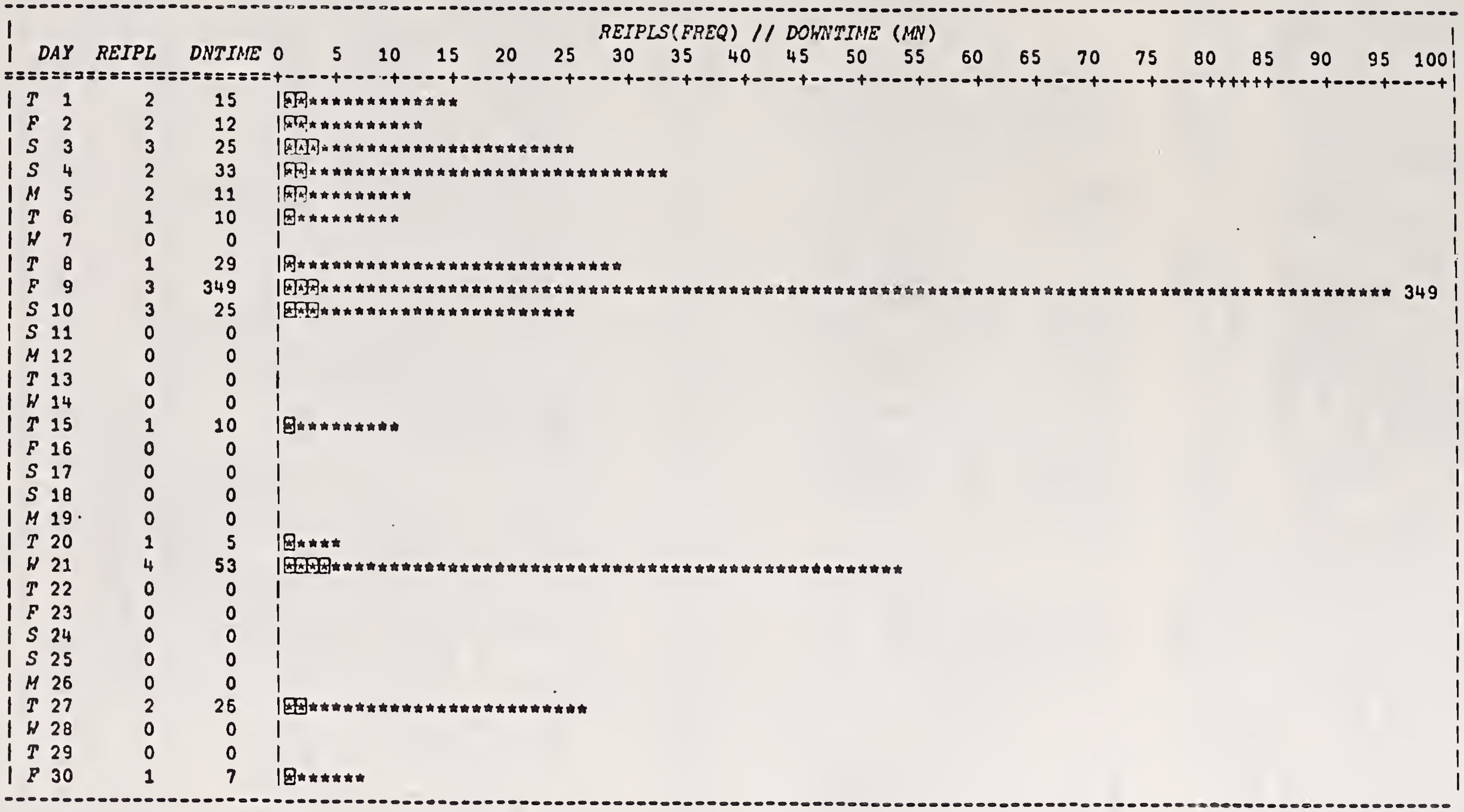
Seven percent of our total downtime was attributed to a low core overwritten problem on November 4th. The problem has been identified and a fix should be provided by IBM.

Miscellaneous hardware and software problems were responsible for the remaining downtime.

```
                 S/370  DOWNTIMES DURING NOV 73

-------------------------------------------------------------------------------------------------------------------------|
|                                                 TIME OF DAY (HOURS)                                                    |
|  DAY   RELOADS DNTIME  0   1   2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24
=========================+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+
| T  1      2      15     |                                                                                   S S         |
| F  2      2      12     |                                                             S    S                            |
| S  3      3      25     |                                            H     H              S                             |
| S  4      2      33     |                                                                      SSS                      |
| M  5      2      11     |                                   H                       S                                   |
| T  6      1      10     |                                                   S                                           |
| W  7      0       0     |                                                                                               |
| T  8      1      29     |                                I                                        HH                    |
| F  9      3     349     |      HH                                                        H HHHHHHHHHHHHHHHHHHHHHH       |
| S 10      3      25     |                                                                  SS S                         |
| S 11      0       0     |                                                                                               |
| M 12      0       0     |                                                                                               |
| T 13      0       0     |                                                                                               |
| W 14      0       0     |                                                                                               |
| T 15      1      10     |                                              S                                                |
| F 16      0       0     |                                                                                               |
| S 17      0       0     |                                                                                               |
| S 18      0       0     |                                                                                               |
| M 19      0       0     |                                                                                               |
| T 20      1       5     |                                   H                                                           |
| W 21      4      53     |                                                                                 SS SS         |
| T 22      0       0     |                                                                                               |
| F 23      0       0     |                                                                                               |
| S 24      0       0     |                                                                                               |
| S 25      0       0     |                                                                                               |
| M 26      0       0     |                                                                                               |
| T 27      2      26     |                                I   H        S                                                 |
| W 28      0       0     |                                                                                               |
| T 29      0       0     |                                                                                               |
| F 30      1       7     |                                S                                                              |
-------------------------------------------------------------------------------------------------------------------------
LEGEND :    H FOR HARDWARE
            S FOR SOFTWARE                STATISTICS
            O FOR OPERATIONAL
            U FOR UNEXPLAINED
            I FOR LATE IPL
                                        TOTAL SCHEDULED HOURS OF PRODUCTION :  534
                                         TOTAL DOWNTIME (MN)  :  610 , AVG/DAY :  20.33 , AVG/PROD HOUR :   0.57
                                         TOTAL REIPL'S        :   28 , AVG/DAY :   0.93
                                         DOWNTIME RATE IS     :  1.90 PERCENT OF SCHEDULED PRODUCTION HOURS
```

DOWNTIME REPORT ON S/370 FOR NOV 73



DAY	REIPL	DNTIME
T 1	2	15
F 2	2	12
S 3	3	25
S 4	2	33
M 5	2	11
T 6	1	10
W 7	0	0
T 8	1	29
F 9	3	349
S 10	3	25
S 11	0	0
M 12	0	0
T 13	0	0
W 14	0	0
T 15	1	10
F 16	0	0
S 17	0	0
S 18	0	0
M 19	0	0
T 20	1	5
W 21	4	53
T 22	0	0
F 23	0	0
S 24	0	0
S 25	0	0
M 26	0	0
T 27	2	26
W 28	0	0
T 29	0	0
F 30	1	7

```
LEGEND      : ONE □  =ONE REIPL
              ONE *  =ONE MINUTE OF DOWNTIME
```

CREDIT REQUESTS

R. Cox

A total of 71 credit requests were received for the month of November. The major contributions to this total came from a series of equipment checks on OC3 (one of the 9 track tape drives) and several lost outputs which were misplaced during shipment to a remote terminal and later recovered. The self-service printer worked extremely well in its first few weeks of existence; only 2 credit requests for lost output have been received. The table below summarizes credit requests over the past months.

	NOV	OCT	SEPT	AUG	JULY
Hardware	17	7	13	14	11
Software	19	20	24	19	10
Human	35	18	8	30	8
	71	45	45	63	29
# of jobs	49006	42475	25530	31118	33075
% of jobs	0.14	0.11	0.18	0.20	0.09

/*SETUP ARRIVES

V. T. Peltz

On January 2nd, 1974, UTCC will begin to support two new HASP control cards. The first card, /*SETUP, will be used to provide information necessary to schedule Class=B and Class=C jobs which require tape mounts, disk mounts or more memory than allowed by Class=A. The second card, /*MESSAGE will be used to send messages to the console operator before the job begins execution. Information explaining how to code /*SETUP and /*MESSAGE cards will be available through USERBOOK and as handouts through the Information Office, SF128, Advisors' Office, SF117 and from the Remote Terminal Co-ordinators as of January 2nd, 1974.

The use of /*SETUP cards as a replacement for SPEC will facilitate improved scheduling of Class=B and Class=C jobs by eliminating much of the unnecessary contention between jobs which require mounts but could otherwise run at the same time. It is expected that this will improve overall Class=B and Class=C job turnaround.

The SETUP facility will eliminate the Class=C job form which currently must be filled out for every Class=C job run. CPU time and line requirements will be extracted from the user's job card. The user will be able to specify any tape and disk mounts and large memory requirements using the /*SETUP card. Any information which cannot be provided within the framework of the /*SETUP card can be coded in a free format on a /*MESSAGE card. The /*MESSAGE card will provide the user with a means of informing the operator of any special job requirements not covered by /*SETUP before the job is executed.

If the user wishes to communicate information to the operator after execution begins, one of two catalogued procedures may be used:

```
1) // EXEC  WTO,MSG='message'
2) // EXEC  WTOR,MSG='message'
```

The first procedure is used if no reply from the operator is required; the second should be used if a reply is required. Further information will be available in USERBOOK. SPEC will be discontinued on February 5th, 1974. The replacement of SPEC by /*SETUP and /*MESSAGE may inconvenience some users. However, we feel the gains will more than offset the disadvantages. The restrictions are:

1) /*SETUP is not free format as was SPEC. It has a rigid, but easily learned syntax.

2) /*SETUP cards, as with all other HASP control cards, will be ignored if included in catalogued procedures because of the internal structure of HASP.

It is anticipated that the above restrictions will not cause undue difficulty to users and we are prepared to give assistance to any user who experiences problems.

Remember these dates:

1) Jan. 2, 1974 - /*SETUP arrives.
2) Feb. 5, 1974 - SPEC discontinued.
3) Feb. 5, 1974 - Class=C Job Form discontinued.

SORT INTERFACE WITHIN A COBOL PROGRAM

H. Kugel

UTCC has obtained a sort interface from the General Foods Corporation. The interface allows a less restrictive call to the IBM Sort/Merge package from the user's COBOL program and removes some of the constraints currently existing in the COBOL Compiler.

Users interested in obtaining information about this routine should contact Herb Kugel at 928-7286.

HIGH SPEED JOB STREAM NEWS

M. Tapia

During the month of November 1973, 221,457 jobs were processed on the High Speed Job Stream compared with 147,899 for the previous year. This represents an increase of 49.73%. During the period July through September, 626,133 jobs were processed for an increase of 41.9% over the previous year. Unit Record activity (lines printed and cards read) was 168,746,249 for the same period and 6059.66 CPU minutes were used.

Out of the 221,457 November HSJS jobs, ASUT and EUT, the two dedicated High Speed Job Stream Terminals, processed 173,807 jobs which included 16,399,807 cards read and 31,043,034 lines printed. On the average, more than 184 jobs were processed each hour at each terminal while the HSJS service was available.

In determining how heavily loaded the two terminals were, the throughput observed should be compared to the maximum throughput possible. The average number of lines printed exceeds the average number of cards read per job. Since the speed of the card reader and line printer are comparable (1000 cards per minute and 1000 lines per minute), the printer is the limiting factor. If system down time, paper changing, and any printer or reader malfunctions are ignored, and if the printer is running continuously, at most 60,000 lines can be printed per hour. The following formula can be used to determine what percentage of the capacity of the two terminals is being used during any period:

lines printed / (60,000 * number of terminal hours)

As an approximation to the number of lines printed, assume that the average number of lines printed is independent of the time of day. The number of lines can be approximated by multiplying the number of jobs by the average number of lines in a job for another period containing the observation. During November, the two terminals were operating at 55% of capacity, and during the normally scheduled hours, they were operating at 58% of capacity. The terminals were heavily loaded on Thursday, November 29 when 7,629 jobs were processed at ASUT and EUT and 1,482,607 lines were printed (or 194.33 lines per job). During the entire day, the terminals were operating at 72.55% of their maximum capacity. This figure rose to over 79% for the regularly scheduled hours of service. Between 9:00 and 10:00 p.m., this figure rose to more than 99%.

The system is quite heavily loaded and many users have resorted to running their jobs very late in the day, or very early in the morning. In November, 8.2% of the jobs processed at ASUT and EUT were run between the hours of 10 p.m. and 8 a.m.

What do these figures mean to the user? If High Speed Job Stream usage increases during 1974, they mean longer lineups and longer delays between runs. How can you help? You can check the HSJS job summary charts posted at the terminals and schedule your use of the system for off-peak hours as well as beginning your assignments well before the deadline. Instructors can help improve the situation by co-ordinating the scheduling of their course assignments throughout the term so that the due dates for assignments are staggered. S/370 Services will co-operate with the instructors in helping to alleviate this problem. Questions and suggestions should be referred to Mark Tapia, Room SF114, phone 928-7109.

```
                     HSJS RESOURCE USAGE BY PROCESSOR FOR  1/11/73  TO 30/11/73

              |  TOTAL  |  TOTAL  |  TOTAL  |  TOTAL   ||  AVG   |  AVG  |  AVG   ||
              |  #JOBS  |   CPU   |  CARDS  |  LINES   ||CPU*10  | CARDS | LINES  ||
-----------------------------------------------------------------------------------
WATFIV    -W |   81158 |   71846 | 8448084 |11767046  ||      8 |   104 |   144  ||
SPITBOL   -T |    2103 |    1519 |  282419 |  345450  ||      7 |   134 |   164  ||
PL/C      -C |  116400 |  104678 | 8900889 |20941158  ||      8 |    76 |   179  ||
UTILITY   -U |    4633 |     829 |  748621 |  953693  ||      1 |   161 |   205  ||
ALGOLW    -G |    1738 |    2371 |  574108 |  613996  ||     13 |   330 |   353  ||
PLUTO     -P |    8466 |   12635 |  717191 | 1268775  ||     14 |    84 |   149  ||
ASMG      -A |    1735 |    3098 |  327603 |  604149  ||     17 |   188 |   348  ||
WATBOL    -B |    2345 |    4427 |  636182 |  715216  ||     18 |   271 |   304  ||
SIMON     -S |    2813 |     203 |  100952 |  167994  ||      0 |    35 |    59  ||
ASSIST    -I |       0 |       0 |       0 |       0  ||      0 |     0 |     0  ||
LISP      -L |      66 |      57 |   23201 |   23769  ||      8 |   351 |   360  ||
OTHER     -? |       0 |       0 |       0 |       0  ||      0 |     0 |     0  ||
OTHER     -? |       0 |       0 |       0 |       0  ||      0 |     0 |     0  ||
-----------------------------------------------------------------------------------
        TOTAL  221457    201663  20759250  37401246          9      93     168
```

```
ALL                    HSJS SUMMARY FOR   1/11/73 TO 30/11/73

PROCESSOR       #JOBS % TOTAL|  #JOBS TIME+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+
WATFIV   -W     81158   (36%)|   1771    0|WWWWCCCCCCCCP
SPITBOL  -T      2103   ( 0%)|   1899     |WWWWCCCCCCCCCP
PL/C     -C    116400   (52%)|   1712    1|WWWCCCCCCCCP
UTILITY  -U      4633   ( 2%)|   1446     |WWCCCCCCCP
ALGOLW   -G      1738   ( 0%)|   1208    2|WWCCCCCCC
PLUTO    -P      8466   ( 3%)|    972     |WCCCCC
ASMG     -A      1735   ( 0%)|    907    3|WCCCCC
WATBOL   -B      2345   ( 1%)|    821     |WCCCC
SIMON    -S      2813   ( 1%)|    695    4|WCCCC
ASSIST   -1         0   ( 0%)|    584     |WCCC
LISP     -L        66   ( 0%)|    518    5|WCCC
OTHER    -?         0   ( 0%)|    437     |CCC
OTHER    -?         0   ( 0%)|    306    6|C
                             |     91     |C
                             |      0    7|
                             |     32     |
                             |   1937    8|WWWWWWCCCCCCU
                             |   4169     |WWWWWWWWWWWWCCCCCCCCCCCCCCCCUP
                             |   4836    9|WWWWWWWWWCCCCCCCCCCCCCCCCCCCCCCCUP
                             |   5778     |WWWWWWWWWWWWWCCCCCCCCCCCCCCCCCCCCCCCCCCUPP
                             |   5960   10|WWWWWWWWWWWWWWWWWTCCCCCCCCCCCCCCCCCCCCCCCUPPB
                             |   7234     |WWWWWWWWWWWWWWWWWWWWWWTCCCCCCCCCCCCCCCCCCCCCCCCCCUPPAB
                             |   7688   11|WWWWWWWWWWWWWWWWWWWWWCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCUPPBS
                             |   8194     |WWWWWWWWWWWWWWWWWWWWWWCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCUPPS
                             |   8491   12|WWWWWWWWWWWWWWWWWWWTCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCUPPABS
SHIFT    # JOBS  % TOTAL     |   8916     |WWWWWWWWWWWWWWWWWWWWWWWWWWCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCUPPPABS
0 - 8      13399    ( 6)     |   9287   13|WWWWWWWWWWWWWWWWWWWWWWWWWWWTCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCUUPPABS
8 - 4     119905    (54)     |   9296     |WWWWWWWWWWWWWWWWWWWWWWWWWWWWTCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCUUPPABS
4 - 12     88153    (39)     |   9109   14|WWWWWWWWWWWWWWWWWWWWWWWWWWTCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCUGPPPABS
                             |   9355     |WWWWWWWWWWWWWWWWWWWWWWWWWWWWTCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCUGPPPABS
  152101 JOBS (68%) WERE RUN |   9629   15|WWWWWWWWWWWWWWWWWWWWWWWWWWWWTCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCUPPPABS
       FROM 10 AM TO 7 PM    |  10026     |WWWWWWWWWWWWWWWWWWWWWWWWWWWWTCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCUPPPA*
                             |   9332   16|WWWWWWWWWWWWWWWWWWWWWWWWWWWTCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCUGPPPABS
                             |   9408     |WWWWWWWWWWWWWWWWWWWWWWWWWWWTCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCUPPPBS
                             |   8252   17|WWWWWWWWWWWWWWWWWWWWWWWWTCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCUPPABS
                             |   8196     |WWWWWWWWWWWWWWWWWWWWWWWWWTCCCCCCCCCCCCCCCCCCCCCCCCCCCCUGPPABSS
                             |   7291   18|WWWWWWWWWWWWWWWWWWWTCCCCCCCCCCCCCCCCCCCCCCCCCCCCCUUGPPBS
                             |   6477     |WWWWWWWWWWWWWWWWWWTCCCCCCCCCCCCCCCCCCCCCCCCCUGPPS
                             |   6476   19|WWWWWWWWWWWWWWWWWWTCCCCCCCCCCCCCCCCCCCCCCCCCUGPPS
                             |   6376     |WWWWWWWWWWWWWWWWCCCCCCCCCCCCCCCCCCCCCCCCCCUGPPS
                             |   6746   20|WWWWWWWWWWWWWWWWCCCCCCCCCCCCCCCCCCCCCCCCCCCCUGPPS
                             |   6572     |WWWWWWWWWWWWWWWWCCCCCCCCCCCCCCCCCCCCCCCCCCCCUGPPS
                             |   5267   21|WWWWWWWWWWWWWWCCCCCCCCCCCCCCCCCCCCUPS
                             |   5237     |WWWWWWWWWWWWWWCCCCCCCCCCCCCCCCCCCCCUPS
                             |   1124   22|WWWCCCC
                             |    577     |WCC
                             |    398   23|WCC
                             |    464     |WCC
                                          +----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+
                          TOTAL 221457    0       1340      2680      4020      5360      6700      8040      9380
```

INTERACTIVE SYSTEMS RELIABILITY

K. Jain

The uptimes achieved for the month of November for each of APL, ATS, and CPS were 98.85%, 98.87% and 98.86% respectively. The total number of scheduled hours of operation during the month of November were 481.5. In addition to the scheduled time, APL, ATS and CPS were also available for approximately 114 hours of unattended weekend operation.

The following table summarizes the time lost out of scheduled hours of operation. There was one late start during the daily schedule due to CPU failure, resulting in total delays of 366, 368 and 371 minutes for APL, ATS and CPS respectively. The following table shows the time lost due to system failures for each of the systems: three unscheduled IPL's were required as a result of the failures. Problems with the CPU accounted for most of the down time.

DATE	DOWNTIME (mins)			REASON
	APL	ATS	CPS	
Thu. Nov. 1	10	-	-	Disc Error (Hardware)
Mon. Nov. 5	10	8	10	*Solid System (Undetermined)
Wed. Nov. 7	8	10	12	*Hasp Catas. Error (Software)
Mon. Nov. 12	270	270	270	CPU Failure (HARDWARE)
Tue. Nov. 13	31	32	35	*Induced by Previous Day CPU Failure (HARDWARE)
Mon. Nov. 19	-	5	-	ATS Abend (Software)
Total	329	325	327	*IPL Required

System Failures November 1 to November 30, 1973.

ADDITIONS TO THE APL PUBLIC LIBRARIES

Ron Thompson

Several new routines have been added to the APL Public Libraries:

(a) Workspace: 6 LINALGPLUS
Contains a collection of functions for use in Linear Algebra. The workspace was contributed by Witold Gesing of the Department of Electrical Engineering.

(b) Workspace: 6 EIGPAK
Contains several functions to compute eigenvalues and eigenvectors of a real matrix. The workspace was contributed by Professor H. W. Smith of the Department of Electrical Engineering.

(c) Workspace: 6 PHYSMATH
Functions: PRIME and PRIMES
The function PRIME is used to determine if a given integer is a prime number. The function PRIMES returns all prime numbers within a specified range. The limits for the range are $1 \leq N \leq 1000000$. The routines make use of information from an APL PLUS file and so involve very little CPU time. The routines and file data were contributed by Dr. J. C. Wilson of UTCC.

(d) Workspace: 6 PHYSMATH
Function: LINEFIT
This function fits the user's data to a straight line $Y=MX+B$ and finds the best values for the slope M and intercept B. The function was contributed by Paul Kantorek of the Department of Physics.

The Interactive Systems Group wishes to thank the authors for their contributions to the APL Public Libraries.

If you have a program or package which may be of general interest to other members of our APL community please notify R. Thompson at 928-2225.

APL 6 CONFERENCE

S. Goldfarb

A reminder to our APL community: the APL 6 Users Conference is being held May 14-17, 1974 in Anaheim, California. The cal] for papers (deadline: January 15, 1974) has invited users t submit papers on topics pertaining to APL and its implementation, enhancements, applications, future, instruction methods and programming techniques. Papers are to be submitted to:

Professor Alfred Bork
Department of Physics
University of California
Irvine, California 92664
(714) 833-6911

Inquiries pertaining to facilities, accommodation, etc., should be directed to:

John R. Clark
Coast Community College District
1370 Adams Avenue
Costa Mesa, California 92626
(714) 834-5634

CRF USERS' MEETING

T.A. Holland

The CRF November Users' Meeting held on November 23, 1973 was chaired by Dennis Smith. A variety of topics were discussed, among them the fact that Jim McBride would be leaving CRF as manager at the end of November and the expected arrival of a PDP-11 graphics system (GT40).

The next CRF Users' Meeting will be held in Room 222, Sandford Fleming Laboratories at 3:00 p.m. on Friday, December 21st, 1973.

NEW HARDWARE

D.R. Smith

CRF has just acquired a DEC GT40. This is a PDP-11/05 minicomputer CPU with an integrated graphics display unit. The GT40 currently has 8K words of memory, a DECWriter and access to a high speed paper-tape reader/punch. We hope to have 16K words of memory on the GT40 within the next few weeks. Anyone interested in using this graphics system should contact Dennis Smith at 928-4086 or Clyde Stevens at 928-8853.

UTCC DIRECTORY

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JOB STATUS QUERIES:

SYSTEM/370	7373
7094	7094

INTERACTIVE TERMINAL SYSTEMS:

System Status	6234
APL	7200
ATS	7100
CPS	6200

CONVERSATIONAL REMOTE JOB ENTRY (CRJE)

2741: Tel:	7223	7381	7386
TTY:			7445

TSO

TTY	7390
2741	7303

UTCC COMPUTER EQUIPMENT

(a) SYSTEM/370 MODEL 165

- located in SF103/105/112
- provides General Purpose Job Stream, High Speed Job Stream, TSO and Conversational Remote Job Entry services
- 3072K bytes of memory
- 1 drum
- 10 disk drives IBM (3330)
- 8 disk drives IBM (2314)
- 6 magnetic tape drives
- (4 9-track and 2 7-track)
- 6 display consoles
- 6 printers
- 5 card readers
- 1 card punch
- 7 remote batch terminals
- 1 paper tape reader
- CALCOMP plotter (11" and 30")
- Gould plotter (11")
- OS/MVT with HASP

(b) SYSTEM/360 MODEL 65

- located in McLennan Physical Laboratories
- provides Interactive Systems Service
- 1536K bytes of core
- 16 disk drives (2314)
- 2 9-track magnetic tape drives
- 1 printer
- 1 card reader
- 1 card punch
- 140 typewriter terminals

- OS/MVT with APL, ATS, and CPS

7094 II

- located in Room 1203 Burton Tower
- 32K words of core
- 1 disk
- 8 magnetic tape drives
- input/output via a 1401 computer

IBM/360 MODEL 44

- located in SF207
- 256K core
- 10 disk drives (8 2314's and 2 2311's)
- 2 2401 tape drives
- 2 1403 printers
- 2 2501 card readers
- 2701 data adapter
- 2250 video display unit
- RADDTS
- Calcomp microfilm plotter
- minicomputers
- VW01 Digitizing Tablet

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